

Introduction to Archaeology

Dr. Matney, Spring 2008

Experimental Archaeology Exercise

– INSTRUCTIONS –

Experimental archaeology is “a means of studying archaeological process through experimental reconstructions of necessary conditions” (Thomas 1999: 359).

The purpose of this exercise is to acquaint the students with the basic procedures of experimental archaeology by designing and implementing a small-scale study of butchery marks on animal bones.

Required Background Reading

Greenfield, Haskel (1999) “The Origins of Metallurgy: Distinguishing Stone from Metal Cut-Marks on Bones from Archaeological Sites” *Journal of Archaeological Science* 26(7): 797-808.

– STEP 1: EXPERIMENT DESIGN –

Scenario. The students have at hand a number of items necessary to carry out a simple experiment to test whether or not they can distinguish the cut marks made on fresh bone by a variety of different cutting blades. These blades are made of a variety of materials (flint, obsidian and steel) and have different edge treatments (unretouched, retouched, serrated). The students need to design a research project which will provide a range of observations which may be used to create analogies useful for describing possible past human behaviors.

1. Students will first prepare a list of variables which need to be controlled or recorded during an experiment.
2. Next, the students will write a short set of procedures for sampling the material. In other words, you need to describe your experiment step-by-step.
3. Finally, the students will make predictions of what they expect to find during the course of their experiments, with an explanation of why they think this. (hint: this is a good time to refer to your background reading).
 - * what characteristics do you think you will see in the cut marks on the bone for flint tools? for obsidian tools? for steel tools?
 - * how effective will each tool be for cutting bone?
 - * what criteria do you think will be useful to examine (e.g., shape of the cut, depth of the cut, etc.)?

– STEP 2: PREPARING SAMPLES –

4. The students will implement their research design procedures by actually making a series of cuts on the animal bones with the tools provided by the professor. Careful notes must be taken to record the variables noted under #1 above.
5. The samples will subsequently be prepared for use in the scanning-electron microscope (SEM) by the professor. This involves boiling off all the soft tissues, cutting the samples into small enough pieces to fit into the SEM, drying them in a dessicating oven and mounting them onto appropriate mounts.

– STEP 3: ANALYSIS –

6. Students will meet with the professor at the scanning electron microscopy lab in Crouse Hall. We will examine each of the cut marks made by the students in a systematic fashion. Students will write a short summary of their observations making careful note of:
 - a. whether or not the observed marks met their expectations (and if not, why?)
 - b. their degree of confidence in distinguishing between different materials
 - c. their degree of confidence in distinguishing between different blade treatments
 - d. additional tests they would run or variables they would control to further refine their research project.
7. Students will hand in a their typed, double-spaced 4-5 page summary at the next class meeting for credit. These summaries should include: a description of the research design and procedures; a discussion of the expected results; a discussion of the actual results, including an assessment of the student confidence in their results; a statement of additional work they would like to undertake.